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May 21, 2019

FID# 114063950 Dodge County Correspondence

Subject:

Response to Oral and Written Comments Received from Public Informational Hearing and Written Comments from the Prior Public Comment Period for the Proposed Vertical Expansion of the Advanced Disposal Services Glacier Ridge South-Southeast Landfill

Dear Interested Party:

Thank you for participating in the public informational hearing for the proposed vertical expansion of the Advanced Disposal Services Glacier Ridge South-Southeast Landfill (proposed vertical expansion). The hearing was held on April 29, 2019 at the City of Mayville municipal building. This letter addresses the comments and questions raised at the public informational hearing and written public comments postmarked by May 3, 2019. It also addresses public comments received during the public comment period for the environmental analysis (EA).

On November 20, 2018, the department determined the Advanced Disposal Services' feasibility report was complete. On November 20, 2018 the department completed an EA wherein the department made a preliminary determination that an environmental impact statement (EIS) was not required for the proposed vertical expansion. The department posted a public notice regarding the feasibility decision and accepted comments between December 4, 2018 and January 4, 2019 in regard to the EA. The feasibility report, the public notice and the EA are available at the Mayville Public Library, the Horicon Public Library, the Dodge County Clerk, the City of Mayville Clerk, the Town of Williamstown Clerk, the Town of Hubbard Clerk, and the Department of Natural Resources (department).

During the comment period, the City of Mayville requested a contested case hearing and a group of concerned citizens requested a public informational hearing. On March 28, 2019 the department published a notice of the April 29, 2019 Public Hearing/Contested Case Hearing in the Wisconsin State Journal, the Beaver Dam Daily Citizen and the Dodge County Pionier. On April 25, 2019, the City of Mayville withdrew its petition for a contested case hearing. In the absence of a petition, the department withdrew its request for a contested case and the Division dismissed the contested case.

Although the contested case hearing was dismissed, the department proceeded with a public informational hearing on April 29, 2019 from 3-8 PM and accepted oral and written comments. All written comments regarding the feasibility report postmarked by May 3, 2019 have been given the same weight and effect in the response to comments as oral testimony presented at the hearing.

Written comments received by the department were compiled with the oral testimony at the hearing and organized into the following topics of concern (not in any order) and are followed by the department's response:

1. **Comment:** Concerns were expressed about odors from the existing Glacier Ridge Landfill and future odors from the proposed vertical expansion.

Response: The department acknowledges that landfills do produce odors at times. Municipal solid waste landfills are required to take steps to limit landfill odors by placing soil cover over the waste and by installing a gas extraction system. Section NR 506.05(1), Wis. Adm. Code requires 6 inches of daily cover to be placed over the waste at the end of each operating day, s. NR 506.06, Wis. Adm. Code



requires one foot of intermediate cover over portions of a landfill that are not active for a period of 6 months, and s. NR 506.08(3), Wis. Adm. Code requires landfills to place final cover after reaching final grades. Municipal solid waste landfills are required by s. NR 504.08, Wis. Adm. Code to install an active gas extraction system.

If a favorable feasibility determination is made, Advanced Disposal Services will be required to include an odor control plan in the plan of operation report for the proposed landfill expansion. Persons may submit complaints about odors directly to the landfill or to the department on the department's website at https://dnr.wi.gov/topic/waste/SHWCF/. Efforts are made to identify the source(s) of odor and correct them as well as preventing these sources from re-occurring.

2. **Comment:** Concerns were expressed about the height of the proposed vertical expansion for aesthetic reasons.

Response: The proposed expansion will raise the height of the existing approved landfill by approximately 102 feet. The height of the landfill is limited by the 4 horizontal to 1 vertical height ratio limit in s. NR 504.09(2)(h), Wis. Adm. Code. There are no laws or regulations which allow the department to limit landfill height for aesthetic reasons.

3. Comment: Concerns were expressed about windblown trash from the proposed vertical expansion.

Response: Section NR 506.07(1)(b), Wis. Adm. Code states, "Provisions shall be made to confine windblown material within the active disposal area." This is commonly done by using daily cover and litter fencing. This site has 3 layers of fencing, movable fence sections near the active area and two fixed fences along the perimeter of the landfill. Section NR 506.07(1)(c), Wis. Adm. Code states, "At the conclusion of each day of operation, all windblown material shall be collected and properly disposed of in the active area in accordance with the provisions of this section unless the operator establishes, to the satisfaction of the department, that all windblown material cannot be collected using reasonable efforts because of conditions beyond the control of the operator, and windblown material which can be collected using a reasonable effort has been collected and properly disposed and nuisance conditions do not exist." Windblown trash near the landfill is picked up by people hired by the landfill.

4. **Comment:** A question was asked about requiring waste to be ground up prior to disposal to limit odors and reduce the landfill volume.

Response: The department does not have the authority to require waste to be processed prior to landfill disposal. The Glacier Ridge Landfill compacts all the incoming waste with compactors to reduce the volume of in-place waste as per s. NR 506.05(1), Wis. Adm. Code and s. NR 506.07(3)(c), Wis. Adm. Code.

5. **Comment:** Questions were asked about how hazardous waste is prevented from entering the landfill and what is done to prevent unauthorized access to the landfill after hours?

Response: Municipal solid waste landfills may not accept hazardous waste by law, except small quantities of household hazardous waste generated by individual households such as paints and home-use solvents. The Glacier Ridge Landfill conducts random load inspections as required by s. NR 506.16, Wis. Adm. Code, observes incoming loads, and has a special waste acceptance plan to prevent hazardous wastes from being accepted at the landfill. The landfill scale and entrance are under observation during operating hours and there is a gate to prevent unauthorized access when the facility is closed and no personnel are onsite.

6. **Comment:** Concerns were expressed about landfill gas being emitted, air quality, and human health related to the fugitive landfill gas.

Response: Municipal solid waste landfills like the Glacier Ridge Landfill are required by law to capture methane gas created by decomposition of the waste. This is done by installing a gas extraction system within the waste mass and constructing a composite final cover over the top of the landfill that prevents gas escaping. The landfill gasses are extracted from the waste mass to prevent any pressure build up and the gasses are either burned in a flare or converted into useful energy which destroys the odor-producing gases and harmful gases. Information about methane gas containment, extraction, destruction and monitoring can be found on pages 7, 14, and 15 of the Environmental Assessment (EA). Those sections of the EA are attached to this letter. A composite final cover system coupled with an active gas extraction and gas destruction system would limit fugitive methane emissions from the proposed landfill expansion. Monitoring of the surface of landfills for fugitive gas emissions is required to be performed several times per year, and necessary repairs to the cover of the landfill or the gas extraction system are required to be implemented if problems are detected.

Many components of landfill gas have odor detection thresholds far below concentrations of regulatory concern. Regardless, emissions of hazardous air pollutants from the landfills are evaluated as part of the air permitting process. The facility must provide information on all air emissions in the application to obtain air pollution control permits, and the facility must demonstrate that their emission rates of hazardous air pollutants will comply with air quality standards which have been established to be protective of human health.

7. Comment: Concerns were expressed about the landfill liner leaking in the future.

Response: The Glacier Ridge Landfill liner is built to federal and Wisconsin Administrative Code specifications. The landfill is monitored by a network of groundwater monitoring wells that show no indications that either the closed Glacier Ridge North Landfill or the active Glacier Ridge landfill is leaking or has leaked since its inception in 1986. Following requirements in ch. NR 504, Wis. Adm. Code and federal regulation this landfill is equipped with a composite liner consisting of 4 feet of clay and a geomembrane. A leachate collection system is placed above the liner system to collect leachate that forms, and which is sent offsite for treatment. The leachate collection system is designed to minimize the leachate head or pressure on the liner to further prevent leakage. This landfill is also equipped with an underdrain/gradient control system which would allow for any leakage to be collected in this system.

8. Comment: Concerns were expressed about nearby bedrock blasting impacting the landfill liner.

Response: Wisconsin rules for landfill siting do not require a setback distance between blasting operations by a quarry and a landfill. Quarry operations would need to comply with local rules and ordinances, the rules of Ch. SPS 307, Wis. Adm. Code (formerly Comm 7, Wis. Adm. Code) which is regulated by the Department of Safety and Professional Services and follow federal requirements of the Mine Safety and Health Administration.

Section NR 504.04(3)(i), Wis. Adm. Code does not allow landfills to be located in unstable areas. For that reason, the department has requested additional information from Advanced Disposal Services on what the potential affects the blasting operations at the local quarries may have on landfill stability. That information will be reviewed prior to making a feasibility decision.

9. **Comment:** Concerns were expressed about surface water impacts to the Horicon Marsh, the Rock River, and the Mississippi River.

Response: The existing Glacier Ridge Landfill is equipped with a landfill liner and a leachate collection system. Leachate is not expected to directly impact surface water. Surface waters are protected from suspended sediment by sediment traps and sedimentation basins on Advanced Disposal Services property. The existing site has an industrial storm water permit and a Storm Water Pollution Prevention Plan.

As per s. NR504.09(1)(a), Wis. Adm. Code storm water drainage ditches, structures and sedimentation basins are designed to control rainfall runoff and limit entrained sediment from reaching surface water bodies. The site has an existing industrial storm water permit. An updated Storm Water Pollution Prevention Plan would be submitted prior to beginning activity related to the proposed expansion.

10. **Comment:** Concerns were expressed about truck traffic in the City of Mayville for trucks hauling waste and landfill construction materials.

Response: Truck routes are a local issue that is not regulated by the department. The transportation routes used by Advanced Disposal Services are designated in the negotiated agreement between the Glacier Ridge Landfill and the affected municipalities (the Town of Hubbard, Town of Williamstown, City of Mayville, and Dodge County). Negotiation between an applicant and the local committee is required by s. 289.33(9)(a), Wis. Stats., and negotiating sessions are open to the public. Section 289.33(8)(b)(4), Wis. Stats. states that traffic flows and patterns resulting from the facility are subjects of negotiation and arbitration.

11. **Comment:** Concerns were expressed about property values in the City of Mayville being affected by the landfill expansion.

Response: Property values are a local issue that is not regulated by the department. The negotiated agreement between the Glacier Ridge Landfill and the affected municipalities addresses compensation to affected property owners. Negotiation between an applicant and the local committee is required by s. 289.33(9)(a), Wis. Stats., and negotiating sessions are open to the public. Section 289.33(8)(b)(1), Wis. Stats. states that compensation to any person for substantial economic impacts which are a direct result of the facility are subjects of negotiation and arbitration.

12. **Comment:** Statements were made that the department should have held the public information hearing prior to April 29, 2019.

Response: The department must follow the procedures required by s. 289.25, Wis. Stats. which allow for a public comment period only after a completeness determination on the feasibility report and a preliminary determination of the need for an environmental impact statement have been made. During the public comment period either a contested case hearing or a public informational hearing may be requested. In this instance, a contested case hearing was requested by the City of Mayville. The department and the Division of Hearings and Appeals met the timelines for scheduling a contested case hearing. As soon as practical after the City of Mayville withdrew the request for the contested case hearing, the department held a public informational hearing.

13. Comment: Statements were made that the department should deny the expansion and close the landfill.

Response: The department may only write an unfavorable feasibility decision if the proposed facility does not meet the requirements of s. 289.29, Wis. Stats. or chs. NR 500-538, Wis. Adm. Code.

14. **Comment:** Statements were made that the department is approving the landfill only to obtain the tipping fees that come from the landfill.

Response: The state assesses tipping fees for each ton of solid waste disposed of in Wisconsin landfills. The fees generate revenue for the State of Wisconsin; however, the revenue would be the same regardless of which landfill the waste was disposed in and revenue does not factor into the department's decision-making process. The following provides further information regarding the tonnage fees and associated accounts.

Revenue is deposited into the Segregated Environmental Management account which consists of two accounts - an environmental management account and a nonpoint account. The state tipping fees total \$12.977 per ton; of this, \$9.64 is deposited in the environmental management account, \$3.20 into the nonpoint account, and \$0.157 into other accounts. Several other environmental fees and revenues are also deposited in the environmental management account.

Revenue from the environmental management account is used to fund several environmental programs. Only a small portion (\$0.15/ton) is allocated for DNR solid waste landfill administration. Other programs funded by the revenue include the DNR Recycling Grants to Local Governments, DNR Cleanup or Well Grants, Debt service for general obligation bonds, WEDC Brownfield grants, and other agencies. The DNR grant programs assist local governments and provide important government services such as recycling, site clean-up, and brownfield development. Local government recycling programs divert a significant amount of waste each year from landfill disposal and are a significant factor in prolonging the life of our solid waste landfills.

For more information on the Environmental Management Account, see the Legislative Fiscal Bureau Informational Paper # 62 (January 2019) http://docs.legis.wisconsin.gov/misc/lfb/informational_papers/january_2019/0062_environmental_management_account_informational_paper_62.pdf.

15. **Comment:** Statements were made that the department has not attended a Glacier Ridge Landfill standing committee meeting to discuss the Land and Gas Reclamation Landfill Superfund Site groundwater contamination.

Response: The department is not required to attend standing committee meetings for the Glacier Ridge Landfill. These meetings are a requirement of the negotiated agreement between the landfill and the affected municipalities, which does not involve the department.

The department's Remediation and Redevelopment (RR) program provides oversight for the Land and Gas Reclamation Landfill Superfund Site groundwater contamination issues. Steve Martin is the supervisor in the Remediation and Redevelopment program for this site. He may be contacted at 608-275-3310 or stevenl.martin@wisconsin.gov.

16. **Comments:** Statements were made about wanting more information about the former Land and Gas Reclamation groundwater contamination plume.

Response: There is no evidence to suggest that the active Glacier Ridge Landfill is causing groundwater contamination. The groundwater contamination in proximity to the Glacier Ridge Landfill was caused by the former Land and Gas Reclamation Landfill. The Land and Gas Reclamation Landfill did not have a liner or leachate collection system. As stated above, the department's Remediation and Redevelopment Program is responsible for overseeing the Land and Gas Reclamation investigation and remediation. The department's Waste and Materials Management program is responsible for overseeing the feasibility and siting process for the proposed vertical expansion of the Glacier Ridge Landfill.

Solvents were disposed of in the unlined Land and Gas Reclamation Landfill_(AKA the Mayville City dump and the Hechimovich Sanitary Landfill Superfund Site). Some of those solvents leaked out of the unlined Land and Gas Reclamation Landfill and into the groundwater. Those solvents (trichloroethylene) and primarily their breakdown products (cis 1,2-dichloroethene and vinyl chloride) are in the shallow groundwater above the bedrock and in the deep bedrock aquifer. The deep bedrock aquifer is the aquifer that most nearby water supply wells, including the City of Mayville municipal wells, draw water from. The plume in the deep bedrock aquifer is trending northeast from the former Land and Gas Reclamation Landfill site. This plume is not trending north toward the City of Mayville municipal wells and those wells do not appear to be at risk from this plume. The plume boundary is defined by both monitoring wells and private wells that have no detectable concentrations of the solvents or their breakdown products. The estimated portion of the plume with concentrations of solvent breakdown products above the health-related standard is about 3,700 feet long and about 1,100 feet wide. Only one water supply well is contaminated with concentrations of solvent breakdown products above the health standard. An additional 4 water supply wells are impacted with solvent breakdown products but at concentrations below their respective health standards. The plume of detectable concentrations below the health standards of the solvent breakdown products is about a mile long measured to the northeast from the former Land and Gas Reclamation Landfill boundary.

The following reports contain extensive information about the bedrock groundwater plume from the former Land and Gas Reclamation Landfill:

- Phase 3 Investigation Report, Off-site Investigation of Chlorinated Volatile Organic Compounds in Groundwater in Bedrock, Land and Gas Reclamation Landfill, Dated May 10, 2018.
- 2018 Off-site Investigation of Chlorinated Volatile Organic Compounds in Groundwater in Bedrock, Land and Gas Reclamation Landfill, Dated March 29, 2019.

 Both reports are available on our website at https://dnr.wi.gov/botw/GetActivityDetail.do?siteId=1757600&adn=0214000906.

Figure 6 (page 38 of the PDF) of the 2018 Off-site Investigation of Chlorinated Volatile Organic Compounds in Groundwater in Bedrock, Land and Gas Reclamation Landfill report depicts the estimated limits of the former Land and Gas Reclamation plume that exceeds the Wisconsin health-based groundwater standards.

The Land and Gas Reclamation Landfill Superfund Site is currently undergoing a 5-year Comprehensive Environmental Response Compensation, and Liability Act (CERCLA) review. Five-Year Reviews generally are required by CERCLA or RR program policy when hazardous substances remain on site above levels which permit unrestricted use and unlimited exposure. Five-year reviews provide an opportunity to evaluate the implementation and performance of a remedy to determine whether it remains protective of human health and the environment. Generally, reviews are performed five years following the initiation of a CERCLA response action and are repeated every succeeding five years so long as future uses remain restricted. Five-year reviews can be performed by EPA or the lead agency for a site, but EPA retains responsibility for determining the protectiveness of the remedy.

The following public notice was published in the Dodge County Pionier on February 28, 2019.

"Hechimovich Sanitary Landfill Superfund Site"

The Wisconsin Department of Natural Resources (DNR) and the United States Environmental Protection Agency (US EPA) are conducting a Five-Year Review of the Hechimovich Sanitary Landfill Superfund Site. The agencies invite and welcome comments from interested parties and the general public. Please direct your comments to:

Trevor Bannister
Wisconsin Dept. of Natural Resources – SCR
3911 Fish Hatchery Rd
Fitchburg, WI 53711
608-275-3490
TrevorA.Bannister@wisconsin.gov

The review will be summarized in a Five-Year Review Report which is due to be completed by June 13, 2019. After that date, a copy of the report will be available for the public to review at:

Mayville Public Library 111 North Main Street Mayville, WI 53050"

When the feasibility determination is made, a copy of that determination will be made available to the public at the Mayville Public Library, the Horicon Public Library, the Dodge County Clerk, the City of Mayville Clerk, the Town of Williamstown Clerk, the Town of Hubbard Clerk, and the Department of Natural Resources web site at https://dnr.wi.gov/topic/Waste/Comment.html.

Sincerely,

Hydrogeologist

South Central Region

Waste & Materials Management Program

cc: Mark Aquino - DNR South Central Region Secretary's Director, Fitchburg

J.D. Smith - DNR South Central Region Field Integration Leader, Fitchburg

Steve Martin - DNR South Central Region Remediation and Redevelopment, Fitchburg

Trevor Bannister - DNR South Central Region Remediation and Redevelopment, Fitchburg

Ann Bekta - DNR Waste and Materials Management, Janesville

Kate Strom Hiorns - DNR Waste and Materials Management, Madison

Duncan Moss – DNR Legal Services, LS/8

Mr. Brian Hayes - Executive Director, Wisconsin Waste Facility Siting Board

Carrie Neu, Clerk-Town of Hubbard

Mary Dessereau - Clerk-Town of Williamstown

Karen Gibson - Clerk-Dodge County

Sara Decker - Clerk-City of Mayville

Horicon Public Library

Mayville Public Library

David A. Crass - Michael Best & Friedrich LLP

John Oswald - Cornerstone Environmental Group

Tyler Field - Cornerstone Environmental Group

Tim Curry - Advanced Disposal Services

Lonn Walter - Advanced Disposal Services

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The SWPPP amendment would contain a description of the new activities that contribute to the increased pollutant loading, planned source control activities that would be used to control pollutant loads, an estimate of the new or increased discharge of pollutants following treatment, and when appropriate, a description of the effect of the new or increased discharge on existing storm water treatment facilities.

Monitoring requirements are specified in s. NR 216.28, Wis. Adm. Code, and section 4 of the Tier II Industrial Storm Water permit. The SWPPP would include a checklist of inspections to be made during the annual facility site inspection required by s. NR 216.28 (2), Wis. Adm. Code. The SWPPP would also identify for each outfall the type of monitoring that would be conducted, such as non-storm discharge monitoring and storm water discharge quality inspections. Section NR 506.07 (2), Wis. Adm. Code, requires that landfills be designed, constructed and maintained in accordance with the applicable requirements of s. NR 504.09 (1), Wis. Adm. Code, and the technical standards developed under sub. Ch. V of ch. NR 151, Wis. Adm. Code, to control sediment movement offsite. The Technical Standards 1001 and 1064 for construction sites require an 80% reduction in sediment load, based on the dominant soil type used at the site, which is clay for landfill liner and final cover.

Air Pollution Control Permits

ADS Glacier Ridge Landfill currently operates under Air Pollution Control Operation Permit No. 114063950-P01 issued November 20, 2014. To control emissions of volatile organic compounds (VOCs) and certain hazardous air pollutants (e.g. – bromodichloromethane, perchloroethylene, and vinyl chloride), that permit requires ADS Glacier Ridge Landfill to operate a landfill gas collection system and to route that collected gas to an open flare as per the requirements of ch. NR 445, Wis. Adm. Code (Wisconsin's Air Toxics Rule).

Before beginning construction on the expansion, ADS Glacier Ridge Landfill would be required to apply for and be issued an Air Pollution Control Construction Permit from the department, in accordance with s. 285.60(1) (a), Wis. Stats. That construction permit application would also act as an application for a revision to its Air Pollution Control Operational Permit. The facility would need to control its air emissions in accordance with applicable state and federal regulations.

Federal New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills would be included in the construction permit and operation permit revision as applicable. State hazardous air pollution regulations in ch. NR 445, Wis. Adm. Code, may apply to emissions from equipment not covered under the NSPS and NESHAP.

Land Use, Zoning, and Surrounding Area

Land within a 1-mile radius of the proposed vertical expansion is zoned Cities and Villages, Farmland Preservation, General Agricultural, Residential, Commercial, Industrial and Manufacturing, Dodge County Shoreland Zoning, Neighborhood Business, Highway Business, Rural Residential Small Lot, Rural Residential Large Lot, Park and Recreation, Conservancy,

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- Plan of Operation Approval under ch. NR 514, Wis. Adm. Code
- Construction Documentation Approval under ch. NR 516, Wis. Adm. Code
- Air Emission Operation Permit under the NR 400, Wis. Adm. Code Series
- Local Negotiated Agreements with all participating affected municipalities and compliance with all applicable local rules and approvals. This process will proceed independently from the department's plan review process.

Proposed Physical Changes

The proposed vertical expansion would have a final elevation of 1,212 feet MSL which is approximately 102 feet higher than the approved final grade included in the plan of operation report for the Southeast Expansion. After completion of the filling operations, the final cover system would have side slopes of 4:1 horizontal to vertical (25%). Visual impacts are expected due to the increased height of the landfill. The proposed vertical expansion waste would, at its closest point, be approximately 300 feet from the edge of pavement of Highway V near the southwest corner of the landfill. The previously approved landfill waste limits near the southwest corner of the landfill would be approximately 190 feet from the edge of pavement of Highway V.

The proposed facility would have some aesthetic visual impacts associated with the project. The approximately 102-foot increase in the height of the landfill would impact views further from the landfill than the currently approved height would. Once the area of the proposed vertical expansion is filled and covered with final cover, any impacts to visual aesthetics are reduced.

The increase in height may also lead to additional wind-blown material at and around the facility. Additional screening would likely be needed to minimize visual impacts and control wind-blown debris.

Manipulation of Aquatic Resources

Changes or alterations to aquatic resources were not proposed, and therefore, not evaluated. Aquatic resources are not expected to be affected by the proposed vertical expansion. Since the areal extent of the landfill would not change, the volume of storm water is expected to be approximately the same as the existing facility. There are 5 existing sedimentation basins that serve the existing landfill and the North Landfill and there is an approved but not yet constructed sedimentation basin to the southeast of the approved landfill. All of these sedimentation basins discharge water to wetlands. Existing sedimentation basins 2, 5, and 6 will continue to serve the existing landfill. The wetland impacts from these discharges were reviewed and approved during the South and Southeast Expansion feasibility processes. No additional impacts are expected.

Emissions and Discharges

The emissions and discharges produced from construction and operation of the proposed vertical expansion will generally be consistent with the emissions and discharges from current operations at the facility.

Municipal solid waste generates landfill gas as a result of the biological breakdown of the organic fraction of the waste in the landfill. Landfill gas generally contains methane, which is

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odorless, carbon dioxide and more than 100 different non-methane organic compounds (NMOCs) such as vinyl chloride, toluene and benzene, and other volatile compounds. Several, including methane and carbon dioxide, are "greenhouse" gases, which means that in the atmosphere they trap solar heat re-radiated from the earth. Many of the compounds in landfill gas produce the landfill gas odor.

Odors produced by decomposing waste would be noticeable during the operational life of the facility. The odors would vary depending on temperature, wind speed and direction, and other weather conditions. The level or intensity of these effects would be similar to those occurring at the existing landfill. There are a number of strategies for odor control at landfills, including effective gas collection and destruction, use of adequate daily cover, minimizing open area, effective leachate control and, if needed, vapor masking agents that can be sprayed to reduce odors.

The volume of landfill gas and fugitive emissions from the landfill cover may increase slightly as a result of the proposed vertical expansion. The peak volume of landfill gas generation will be estimated through modeling and submitted in the plan of operation and air permit application. The chemical characteristics of the landfill gas are not expected to change. The landfill gas will be collected in the active gas collection system. Horizontal migration of landfill gas is not expected to occur due to the presence of the composite landfill liner system and active landfill gas extraction system. Most gas probes required by the existing plan of operation have been installed around the perimeter of the landfill to monitor for gas migration. The remaining gas monitoring probes will be installed adjacent to future Phases 4, 5, and 10 of the existing landfill. The gas collection and control systems will be permitted in accordance with air emissions construction and operating permit requirements.

Leachate would be generated when precipitation infiltrates the landfill and percolates through the waste mass. Leachate from the proposed vertical expansion would be collected in a leachate collection system and recirculated back into the waste mass or hauled offsite for treatment.

Engine exhaust from diesel and gasoline powered vehicles and equipment would be discharged to the atmosphere. The discharge would vary depending on the number of vehicles or pieces of equipment in operation at a given time. Dust could be generated from onsite gravel roads and earthwork activities. Dust quantities would vary depending on the number of vehicles or equipment in operation, weather conditions, and the amount of exposed soil. Dust control measures would include application of water on the access and site roads during dry weather conditions.

Windblown litter (mostly paper and plastic film) can occasionally pose problems at municipal solid waste landfills particularly when wind speeds are high, the working face is exposed to the wind, or when the active phase is at a high elevation. ADS Glacier Ridge Landfill can reduce windblown litter generation by minimizing the size of the working face, installing litter fences, reducing or ceasing operations during the windiest days, and employing litter collection personnel. Currently, ADS Glacier Ridge Landfill uses all the methods listed above to control and collect windblown litter.

Construction and operation of the proposed vertical expansion would not be expected to impact surface water. Precipitation that encounters waste would be contained by the composite liner